REMARKS

The following remarks are being submitted as a full and complete response to the Office Action dated October 22, 2007. In view of the amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to all outstanding rejections and/or objections, that they be withdrawn, and to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

Claims 1 and 3-14 are under consideration in this application. Claims 1, 4, 6, 8 and 10 are being amended, as set forth in the above marked-up presentation of the claim amendments, in order to more particularly define and distinctly claim applicant's invention. New claims 13-14 are being added. All the amendments to the claims are supported by the specification. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

Prior Art Rejections

Claims 1 and 3-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over Collura (US 5,899,867) in view of newly cited deCharms (US 2002/0103429). This rejection has been carefully considered, but is most respectfully traversed.

The training assistant system of the present invention (for example, the Embodiment 2 depicted in Figs. 1 & 8; pp. 22-26), as now recited in claim 1, comprises: a training task presentation unit 120 for presenting a training task (e.g., calculation in Fig. 5, open & close palm in Fig. 9) to a trainee having damage in the brain (Step 802 in Fig. 8); a trainee's response collection unit 111 for collecting, from the trainee, a response in accordance with the training task (Steps 804-805); a brain activity measurement unit 101 for measuring brain activity at a plurality of brain regions of the trainee (Step 806); means for searching a region of interest ROI (e.g., a working memory in the frontal cortex, p. 13, line 4) among the plurality of brain regions (Step 808 in Fig. 8 identifying an active region in synchronism with the trainee's movement as ROI; p. 25, lines 2-13; claim 10) by comparing a response from the trainee's response collection unit 111 with measurement results 103 (Fig. 3) from the brain activity measurement unit 101

(Step 807); and an information processor 108 for controlling presentation by said training task presentation unit 120 and for determining a next training task to be performed depending upon the region of interest ROI searched by said means for searching (Step 810; "*the training is initiated by regarding the region as ROI*" p. 26, lines 2-3).

As recited in claim 10, said means for searching compares a first timing of the response obtained from the trainee and a plurality of second timings of the brain activity in the regions of the brain, and selects the region of interest by judging synchronism between the first timing and the second timings (Step 807 in Fig. 8; p. 25, lines 1-6). As recited in claim 11, the synchronism between the first timing and the second timings is judged by using a correlation coefficient or a calculation method (p. 24, lines 10-13).

As recited in new claim 13, the training task presentation unit 120 presents said new training task to the trainee (training after the ROI followings the same procedure of Fig. 4 (right side of Fig. 8), p. 26, lines 7-10). A response to said new training task from the trainee's response collection unit is compared with measurement results of said new training task from the brain activity measurement unit to evaluate a result of training so as to decide another new training task to be performed (cancelled claim 2; "*set at least one region of interest (ROI) at which brain activity measurement is performed*" p. 11, last paragraph; Step 511 in Figs. 4 & 8; p. 15, lines 9-16). In particular, the means for searching locates the region of interest without using information of a damage location in the brain (claim 14).

The invention thus determines a region of interest (ROI) for a trainee who is a patient with damage in the brain, and then proceeds to training. For example, if the region of interest (ROI) is determined as the working memory in the frontal cortex, and if the brain activity is lower at the completion of the training than at the initiation thereof, it can be judged that the training effect is recognized. This indicates that the trainee has been skilled enough to perform the training task without depending so much on the temporary memory storage. An improvement in training effect can be recognized from the result of brain activity measurement even if a training effect is not recognizable in terms of response promptness and preciseness. If a training effect not recognizable in terms of response promptness and preciseness, and if the peak value of brain activity is invariable or tends to increase, it is judged that a training effect has not been achieved yet (p. 16, last paragraph).

Based on the first and second results, another next training task is determined (Step 511). If the result of evaluation is that a training effect is recognized, a task on a higher difficulty level is determined by shortening a standard time given to the trainee to respond or giving a more complicated calculation task. If it is judged that a training effect is not recognized, a task on the same difficulty level or an easier task is determined or the training task is changed (p. 19, lines 18-27).

As recited in claims 4-5, said information processor sets evaluation criteria for the response of training the trainee and evaluates said response of training the trainee based on the evaluation criteria. For example, a response time of 3 seconds and a correct answer rate of 80% are exemplary threshold values for judging that a training effect is present, and a response time of 5 seconds and a correct answer rate of 70% are exemplary threshold values for judging that a training effect is absent (p. 17, lines 15-20). As recited in claims 6-7, said information processor sets evaluation criteria for the measurement results of brain activities (Fig. 3) and evaluates said measurement results based on the evaluation criteria. For example, a 5% change in the peak value of brain activity has been set as a threshold value for evaluation in the approach (4) (p. 17, lines 20-23). As recited in claims 8-9, said information processor sets evaluation criteria for the response and measurement results of training the trainee and evaluates the response and measurement results based on the evaluation criteria. For example, if the peak value of brain activity at the completion of training is 5.5% lower than the peak value of brain activity at the initiation of training irrespective of a response time of 4.5 seconds and a correct answer rate of 75% obtained from the trainee, the information processor 108 shows the response time, the correct answer rate, and time-series variations in the peak value of brain activity on the display unit 120 (p. 17, line 23 to p. 18, line 3).

Applicants respectfully contend that Collura fails to teach or suggest such "means for searching a region of interest ROI (e.g., a working memory in the frontal cortex) among the plurality of brain regions by comparing a response from the trainee's response collection unit 111 with measurement results 103 from the brain activity measurement unit 101" and "determining a next training task to be performed depending upon the region of interest ROI searched by said means for searching" as in the present invention.

In contrast, Collura only records self-administered monitoring, displaying, analyzing and recording electrical activity of the brain to provide indications of brain activity and a

corresponding mental state of a user (Abstract). As admitted by the Examiner (p. 3, 2nd paragraph of the outstanding Office action), Collura does not concern any "damage/injury in the brain", or selecting "a region of interest which has the damage in the brain", etc, as does the present invention.

deCharms needs to know "the location of the injury or damage" in order to locate ROI ([0665]), and then its measurement unit decides a second training task to be performed based upon a first training task ([0392]). deCharms simply does not "search a region of interest ROI (e.g., a working memory in the frontal cortex) among the plurality of brain regions by comparing a response from the trainee's response collection unit 111 with measurement results 103 from the brain activity measurement unit 101" and then "determining a next training task to be performed depending upon the region of interest ROI searched by said means for searching" as in the present invention. In addition, the present invention determines ROI without knowledge of "the location of the injury or damage" in the brain (claim 14).

Applicants respectfully contend that none of the cited references or their combinations teaches or suggests the features recited in the independent claim 1 or its dependent claims as the present invention. As such, the present invention as now claimed is distinguishable and thereby allowable over the rejections raised in the Office Action. The withdrawal of the outstanding prior art rejections is in order, and is respectfully solicited.

Conclusion

In view of all the above, Applicants respectfully submit that certain clear and distinct differences as discussed exist between the present invention as now claimed and the prior art references upon which the rejections in the Office Action rely. These differences are more than sufficient that the present invention as now claimed would not have been anticipated nor rendered obvious given the prior art. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application as amended is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and telephone number indicated below.

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